EMBOLOS

Naval Warfare from Salamis to Actium

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NAVAL WARFARE FROM SALAMIS TO ACTIUM

by

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INDEX

1.0 INTRODUCTION:

Embolos* is a multi-player game of tactical combat between the oar-powered warships of the Greeks, Romans, and other early Mediterranean cultures. The game system is easy to learn yet always challenging. Players may choose to fight evenly matched tournaments, historical scenarios, or battles based solely on their own imagination.

2.0 REQUIRED GAME COMPONENTS

Embolos is a rules set only, and, as such, will require the additional equipment, listed below, to play.

2.1 The Board

The board should consist of a blank hexagonal sheet. Individual hexs should be 3/4", if possible, but this may be varied along with your ship counter size. The minimum recommended playing area is 25 hexs across, although any size may be used.

2.2 The Ships

The ships may be represented by any means that allows each individual ship to be identified clearly as to the ship's type and owning player. If you are making cutouts, fashion all ships but your pentacounters 1-1/4" long x 3/8" wide. The pentacounters should be 3/4" long x 1/4" wide. If you are using models, 1/1200 scale are recommended, although larger models can be used by adjusting hex size.

2.3 The Ship's Log

Each ship will be required to keep a log (as fully explained in Section 3.1), of its movement, crew, damage, etc.

Xolotl Games, Inc. hereby gives permission for players to photocopy the sample ship's log on page 3 for their own private use.

2.4 Randomizing

Some method of randomly picking numbers between 1-100 and 1-10 will be required. A pair of percentile dice or an ordinary pack of playing cards with the face cards removed will do nicely.

3.0 SETUP FOR PLAY

To begin play, each player places his ships on the game-board with at least 15 hexs between opposing players. Pentacounters occupy one hex; all other ships occupy two hexs, as illustrated in Figure 1. Care must be taken in the placing of ships to insure that they face one of the six hex edges. If facing of any ship becomes unclear during play, the opposing player is allowed to adjust the facing to either of the two closest hex sides, as they see fit.
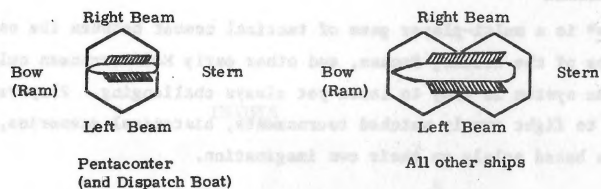
*The Greek word for ram.

Pentaconter
(and Dispatch Boat)

All other ships

Figure 1.

With the exception of ships on beaches, all ships must be placed on all-water hexs.

3.1 SHIP'S LOG

Figure 2 (page 3) is a blank ship's log. Each ship must prepare its own individual ship's log. After naming your ship, if desired, transfer ship type, rowing speeds, acceleration number, deceleration number, turning circle, sailing modifiers, hull factors, ballistas, marines, archers, special archers, and crew, directly off the ship characteristics chart. Check off one of the four full speed boxes whenever full speed is used. Mark the mast-up or sail-up box, if applicable. Divide the number of total oar sections in two to determine the number of right oar sections and left oar sections. Record any losses of hull factors, oar sections, marines, archers, special archers, or crew in the losses section. Check the appropriate place if the left or right rudder is destroyed and record the loss of a mast or sail by crossing out the words "mast" or "sail."

4.0 PLAY

Each game turn is a series of steps in which all players perform the instruction indicated on their ship's logs. All steps must be performed in the order listed in Section 4.1. Each step of the game turn must be completed before proceeding to the next indicated phase.

4.1 Game Turn Sequence

Step 1   Writing Moves

Step 2   Phased Movement (including Degrappling)

Step 3   Missile Fire

Step 4   Oak-Raking and Diecplus

Step 5   Ramming Results

Step 6   Grappling

Step 7   Boarding and Control of Ship

Step 8   Damage Control (Hole Plugging, Fire Fighting, Crew Transfers)

Step 9   Weather

Figure 2.

SHIP'S LOG

Ship Name_____ Ship Type_____

Rowing Speeds: Slow_____ Cruise_____ Full_____

Acceleration_____ Deceleration_____ Full Speeds Used ☐ ☐ ☐ ☐

Turning Circles: Slow_____ Cruise_____ Full_____

Sailing Modifiers: Beat_____ Reach_____ Run_____

Hull Factors_____ Losses_____

Holed_____ Mast Up_____ Sail Up_____ Ballistas___/___

Right Rudder_____ Left Rudder_____

Right Oar Sections_____ Losses_____

Left Oar Sections_____ Losses_____

Marines_____ Losses_____

Archers_____ Losses_____

Special Archers_____ Losses_____

Crew_____ Losses_____

Move 1_____	Move 11_____
Move 2_____	Move 12_____
Move 3_____	Move 13_____
Move 4_____	Move 14_____
Move 5_____	Move 15_____
Move 6_____	Move 16_____
Move 7_____	Move 17_____
Move 8_____	Move 18_____
Move 9_____	Move 19_____
Move 10_____	Move 20_____

5.0 MOVEMENT

5.1 Movement Under Oar Power - Speed

Oared movement is divided into five speed bands with the actual number of hexs to be moved varying in each category by ship type and condition. The bands are:

Backing - Stopped - Ahead Slow - Cruise - Full

Each ship is allowed only four turns at fast speed per game. Each ship type is categorized by the number of turns required to change from one band to the next. A ship with an acceleration/deceleration number of 1-1 moving at Ahead Slow could accelerate to Cruise, decelerate to Stopped, or remain at Slow for its next turn. A larger ship with acceleration/deceleration number of 3-1 would have to spend three full turns at its present speed to accelerate to the next speed band. Some smaller ships have 1/2 for their acceleration/deceleration number. These ships can change two speed bands per turn.

Crippled ships are defined as vessels that have lost half of their complement of oar sections. Speeds that can be obtained by crippled ships are listed on the ship's data chart. While crippled, acceleration/deceleration numbers for a ship are doubled (e.g., 1/2 becomes 1; 1 becomes a 2, etc.).

Disabled ships are defined as vessels that have lost all oar sections or all oar sections on one side and both rudders. Disabled ships cannot move by oar and may only use drifting or sailing movement.

Drifting - Disabled ships or ships that elect to drift by writing "drift" for their move shall drift one hex in the direction of the wind every odd numbered turn.

5.2 Movement under Oar Power - Turning

A "turn" consists of a 60° turn to the right or left without loss of speed. To turn, a ship must have at least one oar section on both sides or at least one rudder.

Each ship type is categorized as to its normal and crippled turning circles at various speeds. A "T" number is used to describe the turning circle. T-0 means that the vessel can perform a turn to either direction immediately after its last turn. T-1 to T-4 means that 1 to 4 hexs of straight movement must be performed before the vessel can perform the next turn in either direction, even if the ship requires two turns to travel the distance. Note that the T-0 turn circle for ship types that occupy only one hex allows these ships to pivot in place.
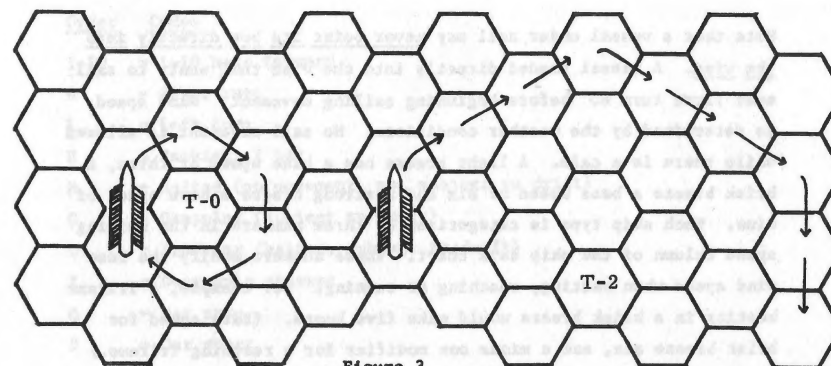
Figure 3

The proposed speed for the period is used to determine the turning circle.

5.3 Making Sail

Unless otherwise noted, all ships are assumed to start a game with a sail and mast on board. All ships except the merchant ship (whose mast is not removable) must first raise the mast and sail before being able to sail. It takes one turn to raise the mast and an additional turn to raise the sail. The turn to raise the sail need not be immediately after the turn used to raise the mast. A ship raising mast or sail can only be at slow speed or stopped. The Hemiolia and Trimiolia are only exceptions to the above rules, both only taking one turn to raise both mast and sail and may make sail at cruise speeds, slow speed, or stopped. A ship can lower mast and sail (or just sail) in one turn.

5.4 Movement under Sail - Speed

The speeds obtained by a ship under sail depends upon the heading of the ship and the wind speed. Figure 4 shows the various heading possible while under sail.

Figure 4.

Note that a vessel under sail may <u>never</u> <u>point</u> <u>its</u> <u>bow</u> <u>directly</u> <u>into</u> <u>the</u> <u>wind</u>. A vessel headed directly into the wind that wants to sail must first turn 60° before beginning sailing movement. Wind speed is determined by the weather conditions. No sail movement is allowed while there is a calm. A light breeze has a base speed of three, a brisk breeze a base speed of six and a strong breeze a base speed of nine. Eac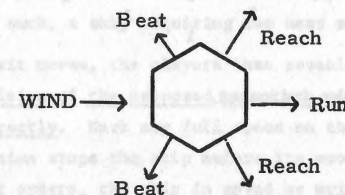h ship type is categorized by three numbers in the sailing speed column of the ship data chart. These numbers modify the base wind speed when beating, reaching or running. For example, a Trireme beating in a brisk breeze would make five knots. (Base speed for brisk breeze six, and a minus one modifier for a reaching Trireme.)

Vessels under sail may accelerate two knots/turn to their maximum speed. Vessels lowering sail decelerate by two knots per turn.

5.5 Movement under Sail - Turning

Vessels with at least one rudder may make one turn per movement period.

Vessels with no rudders may only run before the wind. If the vessel was originally facing a reaching or beating heading, the vessel must make one turn toward a running heading per turn until a running attitude is obtained.

5.6 Phased Movement

All ships, whether operating under oar power or sail, will used phased movement as described below.

Phase Movement Chart

Speed	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
10	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	
8	1	1	1	1	1	1	1	1		
7	1	1	1	1	1	1	1			
6	1		1		1		1		1	
5	1		1		1		1		1	
4		1		1		1		1		
3			1			1			1	
2				1				1		
1						1				1

Move one hex on phase indicated.

6.0 Writing Movement Orders

Movement for each ship must be written secretly on the ship's log. Orders must use a standardized code and be clearly written. Illegible orders will be interpreted by the opposing player.

Order	Codes
1-10	= 1-10 hexes forward
R	= Right turn
L	= Left turn
B	= Backing, 1 hex
H	= Halted (no movement, not subject to drift)
G	= Grappled (subject to drift)
D	= Drifting (halted, subject to drift)
X	= Degrapple attempt
O	= Oar rake
S	= Oar sheer

Examples of Orders

Ship A. Speed 1 Move <u>R</u> (Right turn)

Ship B. Speed 1 Move <u>BL</u> (Backing to Left)

Ship C. Speed 3 Move <u>3</u> (3 ahead)

Ship D. Speed 3 Move <u>1L1</u> (1 ahead, 1 left, 1 ahead)

Ship E. Speed 5 Move <u>1L1R1</u> (1 ahead, left turn, 1 ahead, right turn, 1 ahead)

Ship F. Speed 5 Move <u>2R1R</u> (2 ahead, right turn, 1 ahead, right turn)
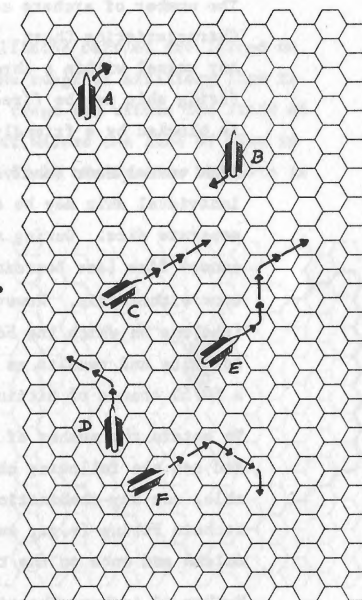
Notice that, in turning, going either forward or in backing, the trailing portion of the ship must enter the hex last occupied by the leading portion of the ship. As such, a ship requiring two hexes may never pivot.

After writing their moves, the players then reveal their moves. <u>Once</u> <u>revealed</u>, <u>no</u> <u>revision</u> <u>of</u> <u>the</u> <u>proposed</u> <u>moves</u> <u>are</u> <u>allowed</u>, <u>even</u> <u>if</u> <u>the</u> <u>move</u> <u>is</u> <u>written</u> <u>incorrectly</u>. Mark any full speed on the ship's log, even if ramming or collision stops the ship before its move is completed. In case of incorrect orders, the ship is moved as written on the log sheet, under the supervision of the opposing player, resolving any errors by:

A) Reducing the speed to the maximum allowed and ignoring any further portion of the move if the vessel has been plotted to move faster than it is able to.

B)   Increasing the speed to the maximum allowed and adding straight
    hexs onto the end of the written movement as required.

C)   Increase the size of the turning circle to the minimum proper size
    to be used if the movement, as written, lists one of too small a size.

7.0   Missile Fire

All missile fire is resolved simultaneously. That is, that if the effects
of missile fire call for the loss of archers from an opposing ship, those
archers are still available to return fire on the current turn. There are
two types of missile fire, archery and heavy missile fire from ballistas
firing large bolts. Each type has slightly different rules governing it.

7.1   Archery fire

The number of archers carried by a ship is listed on the Ship
Characteristics Chart. The range of archery fire is three hexs.
Any vessel within a three-hex range of either hex occupied by the
firing ship may be fired at unless the line of fire to the target
is blocked by a friendly vessel.

Each vessel must resolve fire separately. Fire from archers on an
individual ship may be divided in any way with each group throwing
separate dice. During a boarding action, the archers of ships involved
cannot fire (see Boarding Action Modifiers). Other vessels may fire
upon either ship. However, when firing upon the defending ship
(the one on which the boarding action is taking place), roll archery
for hits and results as normal, then roll the die an extra time for
a 50/50 chance of hitting friendly troops.

To obtain the number of hits upon target (if any), throw two dice
and use the following chart. If more than five archers are avail-
able, use any combination of columns that add up to the number of
archers firing (e.g., seven archers would roll once on the five
column and once on the two column).

Number of Archers Shooting	1	2	3	4	5
Dieroll 1-20	1 hit	2 hits	3 hits	4 hits	5 hits
21-40		1	2	3	4
41-60			1	2	3
61-80				1	2
81-100					1

Modifiers: Add 10% to the die roll if the range is three hexs.
        Subtract 10% from the die roll if the range is one hex.

To obtain the effect of hits upon the target, throw two dice and
use the following chart:

Roll	Lose One:
1-40	No effect
41-50	Oarsman
51-75	Marine
76-85	Crew
86-90	Archer
91-95	Special Archer
96-100	Steersman*

*If Steersman hit, roll again

1-33	60° right turn for next turn only
34-66	Straight ahead for next turn only
67-100	60° left turn for next turn only

7.2   Heavy Missile Fire

The number and positions of the ballistas carried are listed on
the Ship Characteristics Chart. The range of artillery fire is
six hexs. Any vessel within a six range and within the field of
fire of the ballista may be fired at unless the line of fire is
blocked by a friendly vessel. The field of fire for ballista is
illustrated below:

Fore Mounted   Aft Mounted
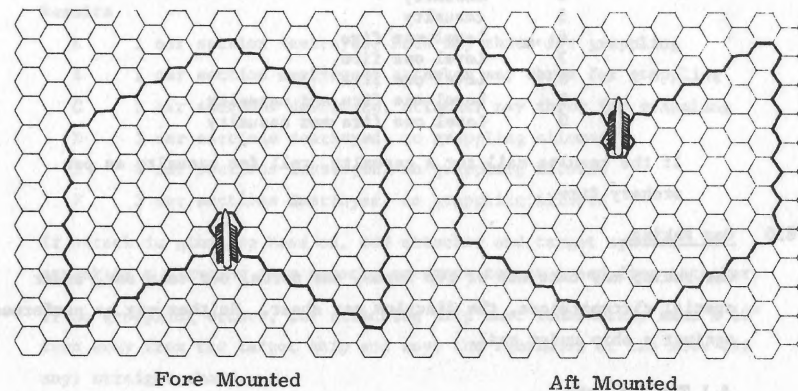
Figure 5.

Each ballista may fire one bolt per turn. Each ballista from each
ship must resolve fire separately. During a boarding action, a
ballista may not fire. Other ships equipped with ballista may fire
at either ship under the same rules governing archery fire into ships
with boarding actions. To determine whether the firing catapult has
hit its target, throw two dice and use the following chart:

Range to Target	Modified Die roll Required to Hit
1 hex	15 + %
2 hex	30 + %
3 hex	45 + %
4 hex	60 + %
5 hex	75 + %
6 hex	90 + %

Modifiers:

Hit same target last turn	+ 10%
Target at full speed	- 10%
Target at low or backing speed	+ 10%
Target stopped	+ 20%
Only one special archer available	- 10%
No special archers available	- 40%

Ballistas on a ship that is ramming or has been rammed cannot fire that turn. Each ballista is manned by two special archers. If losses of special archers are called for, a modifier will have to be used during ballista fire. Additionally, with no special archers, rate of fire for the ballista drops from one bolt per turn to one bolt every other turn.

Ballistas are normally used as a fire weapon. Since they do not always strike vulnerable areas on the ship, a fire may not be started. For each ballista bolt hitting target, throw one die.

Roll	
1	No effect
2	No effect
3	Casualty
4	Casualty
5	casualty
6	Level one fire
7	Level one fire
8	Level one fire
9	Level one fire and casualty
0	Level one fire and casualty

If the results call for a casualty, roll for casualty as per archery fire.

8.0 Oar Raking

Oar raking may take one of two forms, the normal oar rake and, under special circumstances, the diecplus oar sheer. Neither may be performed against a ship under sail.

8.1 The Oar Rake

Any vessel about to ram another vessel from other than dead ahead or dead astern may elect to oar rake rather than ram (see Figure 6).
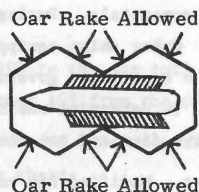
Oar Rake Allowed

Oar Rake Allowed

Figure 6.

Unlike a normal ram, neither ship is halted by an oar rake. The attacker should write "R" on the ship's log and note the position of the oar rake on the board for determining results after movement is over. Success of an oar rake depends on two things: the ratio of the number of hull factors of the attacking ship to the target and the relative speeds of the two ships. Index these on the chart below to determine the success of the oar rake.

Ratio of Hull Factors Attacker/Target
(rounded in the target's favor)

Speed	8+/1	4/1	2/1	1/1	1/2	1/4	1/8	1/12+
9+	D	D	E	F	F	F	E	C
8	C	C	F	E	F	E	D	C
7	C	C	D	E	E	E	D	C
6	B	B	C	D	D	D	C	B
5	A	B	B	C	D	C	B	A
4	-	A	B	C	C	C	B	A
3	-	-	A	B	B	B	A	-
2	-	-	-	A	B	A	-	-
1	-	-	-	-	A	-	-	-

Results

A	1 oar section destroyed, both may throw for grappling
B	1 oar section destroyed, attacker may throw for grappling
C	2 oar sections destroyed, attacker may throw for grappling
D	3 oar sections destroyed, no grappling allowed
E	4 oar sections destroyed, no grappling allowed
F	5 oar sections destroyed, no grappling allowed

If attack is glancing head on, add attacker and target speeds. If attack is a glancing rear attack, subtract target speed from attacker.

If no grappling occurs, the attacking ship must immediately make a 60° turn away from the target ship and move the remainder of the move (if any) straight ahead.

8.2 Diecplus Oar Sheer

The diecplus oar sheer is the most difficult maneuver allowed in Embolos. A set of special criteria must be met to attempt the maneuver. The diecplus may only be used in a bow to bow ram occurring head on as illustrated below.
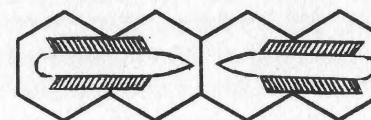
Figure 7.

SHIP CHARACTERISTICS CHART

Ship Type	Hull Factors	Oar Sections (O)	Crew (C)	Archers (A)	Marines (M)	Special Archers (SA)	Ballistas Fore/Aft	Rowing Speeds (crippled)			Sailing Speed Beat/Reach/Run	Turning Circles (crippled)			Acceleration Factor	Deceleration Factor
								Slow + Backing	Cruise	Fast		Slow + Backing	Cruise	Fast		
Dispatch Boat	1	2	1	0	1	0	0/0	1-2 (1)	3-4 (2)	5-6 (3)	-1 / +1 / 0	T0	T1 (T0)	T1 (T0)	1	1/2
Pentaconter	2	4	1	1	1	0	0/0	1-2 (1)	3-4 (2)	5-7 (3)	-1 / +1 / 0	T0	T1 (T0)	T1 (T0)	1/2	1/2
Hectoconter	4	8	1	1	2	0	0/0	1-2 (1)	3-5 (2)	6-7 (3)	-1 / +1 / 0	T1	T1	T2 (T1)	1/2	1/2
Hemiolia	3	6	1	1	1	0	0/0	1-2 (1)	3-4 (2)	5-6 (3)	0 / +1 / 0	T0	T0	T0	1/2	1/2
Bireme	4	8	1	1	2	0	0/0	1-2 (1)	3-6 (2-3)	7-9 (4)	-1 / +1 / 0	T0	T0	T0	1/2	1/2
Trimiolia	6	10	2	1	2	0	0/0	1-2 (1)	3-5 (2)	6-7 (3)	0 / +1 / 0	T0	T0	T1 (T0)	1	1/2
Trireme	8	12	1	2	3	0	0/0	1-2 (1)	3-6 (2-3)	7-9 (4)	-1 / +1 / 0	T0	T0	T1 (T0)	1	1/2
Heavy Trireme	8	12	1	3	8	0	0/0	1-2 (1)	3-5 (2)	6-7 (3)	-2 / 0 / 0	T0	T1 (T0)	T1 (T0)	1	1
Quadreme	10	16	2	3	4	1	0/0	1-2 (1)	3-6 (2-3)	7-9 (4)	-1 / +1 / 0	T0	T1 (T0)	T2 (T1)	1	1
Heavy Quadreme	10	16	2	4	10	2	1/0	1-2 (1)	3-5 (2)	6-7 (3)	-2 / 0 / -1	T0	T2 (T1)	T2 (T1)	1	1
Quinreme	12	20	2	4	6	0	0/0	1-2 (1)	3-6 (2)	7-8 (3)	-2 / 0 / -1	T0	T2 (T1)	T3 (T1)	1	1
Heavy Quinreme	12	20	2	5	13	2	1/0	1-2 (1)	3-5 (2)	6-7 (3)	-2 / 0 / -1	T1	T3 (T1)	T3 (T1)	1	1
6 er	15	24	3	5	15	4	1/1	1-2 (1)	3-5 (2)	6 (3)	-2 / 0 / -1	T1	T3 (T1)	T3 (T1)	2	1
7 er	18	28	3	6	18	4	1/1	1-2 (1)	3-5 (2)	6 (3)	-2 / 0 / -1	T1	T3 (T1)	T3 (T1)	2	1
8 er	21	32	3	6	22	6	2/1	1-2 (1)	3-4 (2)	5-6 (3)	-2 / 0 / -1	T1	T3 (T1)	T3 (T1)	2	1
9 er	24	34	3	6	28	6	2/1	1-2 (1)	3-4 (2)	5-6 (3)	-2 / 0 / -1	T1	T3 (T1)	T3 (T1)	2	1
10 er	27	38	4	7	34	8	2/2	1-2 (1)	3-4 (2)	5-6 (3)	-2 / 0 / -2	T1	T3 (T1)	T4 (T1)	2	1
13 er	36	48	4	8	52	8	2/2	1-2 (1)	3-4 (2)	5 (3)	-2 / -1 / -2	T2	T4 (T1)	T4 (T1)	3	1
16 er	48	60	5	9	76	10	3/2	1-2 (1)	3-4 (2)	5 (3)	-2 / -1 / -3	T2	T4 (T1)	T4 (T1)	3	1
Merchant	6	0	2	0	1	0	0/0	-	-	-	-2 / 0 / -1	-	-	-		

First, determine which ship will take the ram as normal. The attacker (the one not taking the ram) is now given the option of rolling for the diecplus. If the attacker does not choose to attempt the maneuver, the attack is resolved as a normal ram. If the attacker decided to attempt the diecplus, the attacker must announce which side of the target will be attacked. Then two dice are rolled and compared to the table below.

	Roll Required
Attacking ship has two times or more the hull factors of target	1-10%
Attacking ship has more hull factors than target	1-25%
Attacking ship same size as target	1-50%
Attacking ship smaller than target	1-75%
Attacking ship has half, or less, the hull factors of target	1-90%

If the attack is unsuccessful (the required die roll is not made) the attacking ship has missed. Upon failing in the diecplus attempt, the attacking ship may not change its mind and decide to ram and both ships continue their moves as written. (Note that this may allow both ships to pass through the same hex without colliding.) If the attack is successful, the attacking ship then marks an "S" on the ship's log and determines the results by multiplying its current number of hull factors times its speed. Divide the result by five to determine the number of oar sections destroyed. Round up the results in favor of the attacker.

Upon completion of the oar sheer, both the target and attacking ship must move as follows. The target ship must move straight the remainder of its move; additionally, it must be lowered one speed band for the next turn (e.g., if it was moving at cruise it can only make ahead slow next turn). The attacking ship must turn in its tightest possible circle toward the direction of side attacked (e.g., if left side is attacked a left turn must be made) until the ship has completed a 180° turn (this may require more than one turn). The attacking ship will begin the turn on the movement phase that the sterns of the ships pass each other.

9.0 Collisions and Ramming

A ram or a collision occurs when two vessels occupy the same hex. Ramming is differentiated from collisions by intent. A collision is the hitting of an enemy ship with your stern or the hitting of a friendly ship with stern or bow.

9.1 Effects of collisions

Upon colliding, both vessels involved are halted and their purposed movements are changed to reflect this outcome.

Damage is assessed as follows:

Bow to bow	No losses or damage
Bow to beam	Ship taking ram loses one near side oar section
Bow to stern	Ship taking ram loses one rudder
Stern to beam	Ship hit in stern loses one rudder; other ship loses one oar section
Stern to stern	Both ships lose one rudder

In all cases, either ship may throw for grappling.

9.2 Effects of ramming

Upon ramming, both vessels involved are halted, and their purposed movements are changed to reflect this outcome. Rams are broken into three categories, illustrated below.
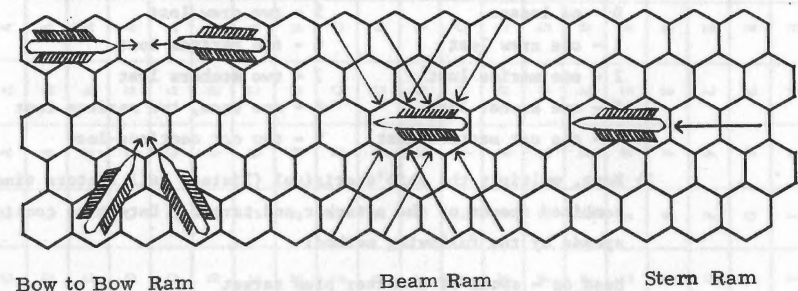

Bow to Bow Ram   Beam Ram   Stern Ram

Figure 8.

9.3 Bow to bow rams

Bow to bow rams occur whenever a ship moves into a hex occupied by another ship, when moving from a dead ahead position, or the bows of two ships, when moving by phased movement, enter the same hex at the same phase. With a bow to bow ram, it must be determined which vessel rammed and which vessel took the ram (even if one of the vessels is stationary or backing). Each player rolls one die with the low roll (0 being the lowest) taking the ram. If equal numbers are rolled, a direct ram to ram collision has occurred and, although neither ship takes damage, both roll for men lost overboard. If either ship has its mast up, it will suffer a mast fall. Both ships may throw for grappling. If phased movement calls for ships meeting on the dividing line between two hexs, the ship receiving the ram does not move from its hex.

9.4 Beam rams

Beam rams are those rams that are not bow to bow rams or rams directly from astern.

9.5 Stern rams

Stern rams are rams made directly from astern.

9.6 Effects of the ram

To determine the effect of any ram, use the following procedure:

1) Automatic losses

Beam rams automatically lose one oar section on the attacked side.

Stern rams automatically lose one rudder section.

Bow rams do not receive automatic damage but must determine which ship is ramming.

All rams - any vessel with mast or sail up will suffer a mast fall. Any vessel that suffers a mast or sail fall loses that mast and/or sail, and rolls one die for additional losses.

0 - no losses	5 - two crew lost
1 - one crew lost	6 - two marines lost
2 - one marine lost	7 - two archers lost
3 - one archer lost	8 - one crew, two marines lost
4 - one oar section lost	9 - two oar sections lost

2) Next, multiply the ship's original (listed) hull factors times the combined speeds of the attacker and target. Determine combined speeds by the following method:

Head on - speed of attacker plus target

Glancing Head on - speed of attacker plus 1/2 speed of target (round any fractions down in favor of target)

Glancing Rear - speed of attacker minus 1/2 speed of target (round any fractions up in favor of target)

Rear - speed of attacker minus speed of target

This sum is the momentum factor.

3) Now, crosshatch the momentum factor with the target ship type on the ram results table.

For beam rams read the results directly off the appropriate place on the chart.

For stern rams shift one column to the left to read the results.

For bow rams shift two column to the left to read the results.

4) The Ram Results Table (see Figure 9).

Reference Ram Results Table results with the listings below.

Figure 9.

RAM EFFECT CHART

Momentum	Dispatch Boat	Pentaconter	Hectaconter	Hemiolia	Bireme	Trimiolia	Trireme	Heavy Trireme	Quadreme (4 er)	Heavy Quadreme	Quinreme (5 er)	Heavy Quinreme	Heavy Seteres	Heavy 7 er	Heavy 8 er	Heavy 9 er	Heavy 10 er	Heavy 13 er	Heavy 16 er	Merchant
401+	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	D
301-400	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	C	E
201-300	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B	C	C	C	F
151-200	A	A	A	A	A	A	A	A	A	A	B	B	B	B	C	C	C	D	D	G
101-150	A	A	A	A	A	A	A	A	B	B	B	B	C	C	C	C	D	D	D	G
81-100	A	A	A	A	A	B	B	B	B	B	B	C	C	C	D	D	E	E	E	H
61-80	A	A	A	A	A	B	B	B	C	C	C	C	D	D	D	D	E	E	E	H
51-60	A	A	B	B	B	B	C	C	C	C	D	D	D	E	E	E	E	E	E	I
41-50	A	B	C	C	C	C	C	D	D	D	D	D	E	E	F	F	F	F	F	I
31-40	B	C	C	C	C	D	D	D	E	E	E	E	E	F	F	F	F	F	G	I
21-30	C	D	D	D	D	D	E	E	E	E	E	E	F	F	F	G	G	G	G	I
16-20	D	E	D	D	E	E	E	F	F	F	F	F	G	G	G	H	H	H	I	I
11-15	D	E	E	E	E	F	F	F	F	F	G	G	G	G	H	H	I	I	I	I
6-10	E	F	F	F	F	F	F	G	G	G	G	G	H	H	H	H	I	I	I	I
1-5	E	F	F	F	F	G	G	G	G	G	H	H	H	H	I	I	I	I	I	I

Ship Type

A = Target sinks immediately, attacker is not halted and completes move as written. No survivors from target ship.

B = Target rolls five times for men lost overboard. Target holed, 25% chance of ram getting stuck in target, 10% chance of removing ram on any later turn. If ram sticks, both may throw for grappling. If ram does not stick, target takes two hull damage, loses two hull factors per turn until plugged.

C = Target holed, 10% chance of ram getting stuck in target, 50% chance of removing ram on any later turn. If ram sticks, both may throw for grappling. If ram does not stick, target takes two hull damage, and loses one hull factor per turn until plugged. Attacker may throw for grappling. Target rolls twice for men lost overboard.

D = Target takes two hull damage. 75% chance of target holed; if so, loses one hull factor per turn until plugged. Attacker may throw for grappling. Target rolls once for men lost overboard.

E = Target takes one hull damage. 50% chance of target holed; if so, loses one hull factor per turn until plugged. Attacker may throw for grappling.

F = Target takes one hull damage. 10% chance of target holed; if so, loses one hull factor per turn until plugged. Both may throw for grappling.

G = Target takes one hull damage. Both may throw for grappling.

H = Both may throw for grappling.

I = Attacker takes one hull damage. Both may throw for grappling.

5) After the ram effects have been calculated, any attacking vessel that is not stuck in, or grappled to its target, and that can back without collision must back one hex (B, BR or BL) and change the log sheet from H (halted) to reflect the ship's current status. Vessels with their ram stuck into a target ship attempt to remove the ram by writing a move to back them away from the target ship. Roll during the first phase of phased movement. If successful, begin movement at the proper phase; if unsuccessful, simply ignore the purposed move.

9.7 Hull damage and sinking

For each hull damage received, lose one hull value. When no hull values remain the vessel will become a floating wreck, unless the vessel is grappled to a ship or ships with equal or greater hull value. Upon degrappling, the ship becomes a floating wreck. Any

vessel grappled to a floating wreck of greater hull value will lose one hull value per turn for shipping water until degrappled. To indicate a floating wreck invert the ship counter. Collisions with a floating wreck are possible. Treat all collisions normally. Treat all rams normally, except that floating wrecks always take the ram. During each hole plugging phase, roll one die for each floating wreck, a roll of 0 indicates that the wreck has broken up and the counter is removed from the board. Any vessels grappled to a floating wreck that breaks up are considered ungrappled at that time.

9.8 Holed vessels

Any vessel has a 25% chance of plugging any hole. Each hole must be rolled for separately. If the hole is not plugged, the vessel will continue to lose hull values at the assigned rate.

9.9 Men lost overboard

Roll one die as many times as required by the ram results.

Roll

1-2 Two marines

3-5 One marine

6-7 One archer

8-9 One crew

0   One special archer

10.0 Grappling

Grappling may be attempted in three cases: (1) when allowed as the result of an oar rake; (2) when allowed as the result of a ram; (3) when a ship is ordered along side without ramming. The latter is done by maneuvering as if for a ram or oar sheer but writing "Board" in the log sheet to show your intentions of doing neither. The combined speed (as figured for ramming) may not be over two knots to attempt the "Board" maneuver. All ships have a 75% chance of grappling, modified as below:

- 10% per 10 hull factors, more or less than target
- 10% if ramming this turn
- 20% if rammed this turn
+ 10% if grappling unopposed by marines or archers

All modifiers are cumulative. Grappled ships cannot move, but are subject to drift.

10.1 Degrappling

To attempt to degrapple, write "Attempt Degrapple" followed by any maneuver that would carry the grappled ship away from the opposing ship. Remember that the speed last turn was zero and any maneuver purposed must be consistent with a stopped speed band last turn. Roll for degrappling on the first phase of phased movement; if

successful, begin movement at the proper phase; if unsuccessful, simply ignore the purposed move. All ships have a 50% chance of degrappling, modified as below:

Degrappling from larger ship — 10%

Degrappling from smaller ship + 10%

Degrappling unopposed by marines or archers + 20%

If totally unopposed, degrappling is automatic. In cases where a vessel is grappled by multiple ships, each degrappling attempt must be thrown independently. Note that ships grappled by the bow and stern cannot degrapple, since they cannot write any order that would carry the ship away from both opposing ships.

11.0 Boarding Parties

Any ship, grappled to another, may send a boarding party to gain control of the ship. The maximum number of units which may board an opposing ship is equal to twice the maximum number of crew, archer and marine factors allowed on the ship characteristics chart (e.g., only 6 enemy marines would fit on a pentacounter being boarded). The rate at which a ship may be boarded (per each board action, if more than one) is:

2 marines per turn if ship being boarded has 1 to 8 hull factors

4 marines per turn if ship being boarded has 10 to 15 hull factors

6 marines per turn if ship being boarded has 18 to 27 hull factors

8 marines per turn if ship being boarded has 36 hull factors

10 marines per turn if ship being boarded has 48 hull factors

Each marine unit is worth two points, each archer, special archer and crew unit is worth one point. In special cases, each oar section is worth two points, as described in section 11.1. After determining number of points (not the number of units) involved, each player rolls one die and consults the chart below.

Number of Points Involved in Boarding Action

Die Roll	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46+
0	0	0	1	1	2	3	4	3	5	6
1	0	0	1	2	2	3	4	5	6	7
2	0	1	1	2	3	3	4	5	6	7
3	0	1	1	2	3	4	4	5	6	7
4	0	1	2	2	3	4	5	6	7	8
5	1	1	2	3	3	4	5	6	7	8
6	1	1	2	3	4	4	5	6	7	8
7	1	2	2	3	4	5	6	7	8	9
8	1	2	3	3	4	5	6	7	8	9
9	1	2	3	4	4	5	6	7	8	10

The number resulting from use of the chart is the number of opposing units (not points) eliminated. Each boarding action on a ship (if more than one) is treated separately. Crew assigned to fight one boarding action may not be assigned to fight in any other boarding action. Only marines may board an enemy ship. Marines, archers, special archers, crew and (in special cases) oarsmen may repel boarders.

11.1 Continued boarding actions

A special situation arises when a ship undergoing a boarding action degrapples from all attacking ships. In this case, no more marines may board from the attacker but all attacking marines already on board must continue to fight. No marines may return to the attacking ship once degrappled (unless regrappled on a later turn). If de-grappling has occurred the oarsmen at the ship being boarded may also aid in repelling boarders.

12.0 Control of Ship

At the end of the boarding party phase, control of the ship must be determined. There are three possible outcomes:

1) controlled by original player
2) contested
3) surrendered to attacking player.

A ship is controlled by the original player as long as the number of attacking units on board is less than the number of resisting units.

A ship is contested when the number of units able to resist the boarding party is smaller than the number of the attacking units on board. A contested ship cannot be ordered to make any movement except to attempt to degrapple. A contested ship is surrendered to the attackers when the defending player rolls one of the outcomes below.

a) no marines left on board and not grappled 20% chance of surrender
b) no marines left on board and grappled 30% chance of surrender
c) no M, A, or SA units left on board and not grappled 40% chance of surrender
d) no M, A, or SA units left on board and grappled 60% chance of surrender
e) no M, A, SA or C units left on board and not grappled, 80% chance of surrender
f) no M, A, SA or C units left on board and grappled, automatic surrender

When a ship is captured, the attacking player becomes the controller of the ship and all opposing M, A, SA and C units are eliminated automatically. The attacking player may station at least one marine unit on the captured ship and use the ship in battle if so desired. The only restriction is that once captured a ship may never use a full speed.

12.1 Damage control in a controlled ship

Any ship that is controlled by either play may now perform various damage control functions.

Hole Plugging. A hole may be plugged on a roll of 25% or less.

Torching. A ship may be torched (intentionally set on fire) automatically. One level one fire may be set per turn.

Oar Transfers. Oar factors may be transferred from left to right side or vice versa.

12.2 Damage control in a contested ship

Hole Plugging. A hole may be plugged on a roll of 25% or less.

Torching. A ship may be torched on a roll of one through five by the defending player only. Only one level one fire may be attempted per turn.

Fire Fighting and Oar Transfers. Neither fire fighting nor an oar transfer is allowed on a contested ship.

13.0 Fires

Fires can start in any of three ways:

1) ballista fire results may start a level one fire
2) being grappled to, rammed by, ramming, or colliding with a ship on fire can start any level fire
3) torching a ship (intentionally setting fire to a ship rather than allowing it to be captured) can start a level one fire.

Fires occur in four levels

Level 1: a small bondfire

Level 2: a very large bondfire

Level 3: almost half the ship in flames

Level 4: entire ship is ablaze; must abandon ship

13.1 Fire fighting

Any controlling player may attempt to put out or contain a level one or two fire. Roll one die.

Roll	Level 1	Level 2
0	Fire out	Fire out
1	Fire out	Fire contained
2	Fire out	Fire contained
3-4	Fire contained	Fire contained
5	Fire contained	Fire spread
6-9	Fire spread	Fire spread

Modifier: add one per five crew members (M, O, C, A or SA) trying to put the fire out (up to a maximum of +4).

Fire out = Fire is permanently out

Fire contained = Fire stays at present level this turn

Fire spread = Roll one die

0 - 3   Fire stays at present level

4 - 9   Fire goes up one level

Level 3 Fires roll for fire spread each turn.

Units used to fight fires cannot be used for any other function (e.g., repelling boarders, archery).

Any ship that collides with, rams, is rammed by, or is grappled to a ship with a fire greater than level one or boarded must roll for fire transfer between ships. Level one fires will not transfer.

Fire Level on Original Ship

Roll	Level 2	Level 3	Level 4
0	No transfer	No transfer	Level 1
1	No transfer	No transfer	Level 1
2	No transfer	Level 1	Level 1
3	No transfer	Level 1	Level 2
4	No transfer	Level 1	Level 2
5	No transfer	Level 1	Level 2
6	No transfer	Level 2	Level 2
7	Level 1	Level 2	Level 3
8	Level 1	Level 2	Level 3
9	Level 1	Level 2	Level 3

13.2 Sinking due to fire

Each turn a ship has a level four fire, roll one die. A roll of one or two will mean the ship breaks up and sinks (extinguishing the fire).

14.0 Weather

The last step involved in any game turn is the weather. Before the game begins, number all sides of one hex 1-6. The game starts with no wind and no wind direction. Each turn, roll one die. If a one is rolled, there will be change in the weather, and a second die roll is required. The weather change is as follows:

Roll	Effect
1	wind comes from direction 1
2	wind comes from direction 2
3	wind comes from direction 3
4	wind comes from direction 4
5	wind comes from direction 5
6	wind comes from direction 6
7	wind picks up 1 speed
8	wind picks up 1 speed
9	wind drops 1 speed
0	wind drops 1 speed

There are four weather types: (1) calm, no wind, speed, no direction

(2) light breeze, wind speed 3

(3) brisk breeze, wind speed 6

(4) strong wind, wind speed 9

Any roll that calls for a strong wind to pick up, or a calm to drop, is rerolled.

15.0 Obstacles

In addition to all sea hexs, a variety of terrain features may be marked on the game board.

15.1 Sandbars and coral reef

Vessels entering these hexs shall roll two dice as each of these hexs is entered. If the number rolled is equal to or less than the number of listed hull values for that ship type, the ship will be halted on the sand bar. If under sail, the ship will suffer a mast fall. A vessel caught on a sand bar takes no other damage. A vessel caught on a coral reef becomes holed and loses one hull factor per turn upon being freed, until plugged. The hole may not be plugged before the vessel is freed. A vessel caught has a 50% chance of freeing itself per turn. Any vessel entering a sand bar or coral reef hex to ram another ship caught on the hex, runs a risk equal to twice its hull value of itself being caught. If a vessel is hung up in this manner, it is assumed to be stopped just short of ramming the target vessel.

15.2 Visible rocks

Vessels entering these hexs shall automatically hit the rocks. Calculate damage by multiplying the hull factors of the ship times its speed and consult the chart below. The ship is automatically halted and may backout on the next turn.

Momentum Factors (hull factors x speed)	Hull Factors Destroyed
1-33	2
32-66	5
67-99	10
100-133	15
134-166	20
167 +	25

If under sail, the vessel will suffer a mast fall.

15.3 Sand beaches

Any vessel may beach itself on a sand beach. Vessels may beach either bow or stern first. Vessels may also beach at any speed; however, vessels beaching under sail, at more than slow speed, will suffer a mast fall. The headings and speed of beaching will affect the chance of re-launching the ship. A beached vessel occupies one hex of beach.

Facing	Speed at entering	
Bow beached 20%	1	0%
Stern beached 10%	2	10%
	3	20%
	4-5	40%
	6-7	60%
	8+	70%

Add the percentage for facing to the percentage for speed of entry. To re-launch the ship, a percentage higher than this sum must be rolled (e.g., a ship beaching bow first at a speed of three would require a roll greater than 40% to re-launch). A vessel failing to make the required die roll to re-launch may continue to try each turn. Ships re-launching can only make ahead slow or backing speed the turn after launch. Any holed vessel that beaches on a sand beach stops losing hull values. After three full turns on a sand beach, any hole is automatically plugged.

15.4 Wooded beach

Any vessel may beach itself on a wooded beach as for a sandy beach except the speed of entry into the hex must be no greater than one. A ship may automatically re-launch from a wooded beach, but it may only make ahead slow or backing speed to turn after launch. A vessel, beached on a wooded beach, does not occupy any beach hex, but the water hex (full or partial) adjacent to it. Holed vessels on wooded beaches still continue to lose hull values and must roll for hole plugging as normal.

15.5 Rocky cliffs

Any vessel, entering a rocky cliff hex, calculates damage as for visible rocks (section 15.2).

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